What is claimed is:

1. A method of etching an uniform silicon layer, comprising:

providing a patterned silicon layer;

forming an etching buffer layer conformally on the surface and the top layer of the patterned silicon layer; and

etching the etching buffer layer and the patterned silicon layer until the thickness of the patterned silicon layer is reduced.

2. The method as claimed in claim 1, wherein the etching buffer layer comprises silicon oxide (SiO_2).

3. The method as claimed in claim 2, wherein the etching buffer layer is formed by oxidation.

4. The method as claimed in claim 1, further comprising Cl_2, SF_6, or HBr used during etching.

5. The method as claimed in claim 1, wherein the thickness of the etching buffer layer is about 5~20nm.

6. The method as claimed in claim 1, wherein the thickness of the patterned silicon layer is about 120~250nm.

7. A method of etching an uniform silicon layer, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns;

removing the mask;

forming an etching buffer layer conformally on the surface and the top layer of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and reduce the thickness of the patterned silicon layer.

8. The method as claimed in claim 7, wherein the mask is a photoresist layer.

9. The method as claimed in claim 7, wherein the etching buffer layer comprises silicon oxide (SiO_2).

10. The method as claimed in claim 9, wherein the etching buffer layer is formed by oxidation.

11. The method as claimed in claim 7, further comprising Cl_2, SF_6, or HBr used during etching.

12. The method as claimed in claim 1, wherein the thickness of the etching buffer layer is about 5~20nm.

13. The method as claimed in claim 7, wherein the thickness of the patterned silicon layer is about 120~250nm.

14. A method of etching a silicon layer to avoid non-uniformity, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns;

removing the mask;

introducing a gas containing oxygen treatment to conformally form an etching buffer layer on the surface and the top layer of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and reduce the thickness of the patterned silicon layer.

15. The method as claimed in claim 14, wherein the mask is a photoresist layer.

16. The method as claimed in claim 14, further comprising Cl_2, SF_6, or HBr used during etching.

17. The method as claimed in claim 14, wherein the thickness of the etching buffer layer is about 5~20nm.

18. The method as claimed in claim 14, wherein the thickness of the patterned silicon layer is about 120~250nm.

19. The method as claimed in claim 14, wherein the gas comprises 90%~100% oxygen and 10~0% etching agent used in second etching.

20. The method as claimed in claim 14, wherein the gas containing oxygen treatment is performed at about 10~90°C.